

IN THE CLAIMS

1. (Previously Presented) An apparatus, comprising:  
a housing having a plurality of at least four ports, each of the plurality of ports coupled to a corresponding one of a plurality of at least four fibers;  
a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a respective one of at least four light beams from a corresponding port of the plurality of at least four ports; and  
a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the four light beams, on the outer surface area of the common optical aperture, from each of the plurality of collimating lenses.
2. (Original) The apparatus of claim 1, wherein the beamsplitter comprises a prism.
3. (Previously Presented) An apparatus, comprising:  
a housing having a plurality of at least four ports, each of the plurality of ports coupled to a corresponding one of a plurality of at least four fibers;  
a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of at least four ports; and  
a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses, wherein the beamsplitter comprises a rhombic prism.
4. (Original) The apparatus of claim 1, wherein the beamsplitter comprises a single reflective polarizer plate.

5. (Previously Presented) The apparatus of claim 2, wherein the beamsplitter has an inner surface and each of the light beams have a P-polarized and a S-polarized component, and wherein the beamsplitter has a coating on the inner surface to separate the S-polarized and P-polarized components of the light beam into spatially separate beams.

6. (Previously Presented) An apparatus, comprising:  
a housing having a plurality of at least four ports, each of the plurality of ports coupled to a corresponding one of a plurality of at least four fibers;  
a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of at least four ports; and  
a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses, wherein the beamsplitter comprises a prism, and wherein the plurality of ports comprises a first input port and a second input port, the plurality of collimating lenses comprises a first collimating lens and a second collimating lens, and wherein the beamsplitter is coupled to receive a first light beam from the first collimating lens and a second light beam from the second collimating lens.

7. (Original) The apparatus of claim 6, wherein each of the first and second light beams have a P-polarized and a S-polarized component, and wherein the beamsplitter has a coating to separate the S-polarized and P-polarized components of each of the first and second light beams into spatially separate beams.

8. (Original) The apparatus of claim 7, wherein the beamsplitter comprises a reflective element to receive the S-polarized beam of each of the first and second light beams and direct the S-polarized beams to respective output collimating lenses.
9. (Original) The apparatus of claim 7, wherein the beamsplitter is configured to propagate the P-polarized beam of each of the first and second light beams to respective output collimating lenses.
10. (Original) The apparatus of claim 2, wherein the beamsplitter is constructed from a high index glass material.
11. (Previously Presented) An apparatus, comprising:
  - a housing having a plurality of ports, each of the plurality of ports to receive a corresponding fiber;
  - a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of ports; and
  - a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses, wherein the plurality of ports comprises first, second, third, and fourth input ports and first and second output ports, and wherein the beamsplitter is coupled to receive S-polarized light from the first and third input ports and P-polarized light from the second and fourth input ports, the beamsplitter to combine, into the first output port, S-polarized light from the first input port with P-polarized light from the second input port, the beamsplitter to combine, into the second output port, S-polarized light from the third input port with P-polarized light from the fourth input port.

12. (Original) The apparatus of claim 11, wherin the propagation of light from each of the input ports is substantially parallel to each other.

13. (Original) The apparatus of claim 1, wherein the housing has a length of less than approximately 65 millimeters.

14. (Original) The apparatus of claim 1, wherein the plurality of collimating lenses are GRIN lenses.

15. (Original) The apparatus of claim 1, wherein the housing is constructed of aluminum.

16. (Original) The apparatus of claim 1, wherein the housing is constructed of a material to thermally match the common optical aperture.

17. (Previously Presented) An apparatus, comprising:  
a housing having a plurality of at least four ports, each of the plurality of ports coupled to a corresponding one of a plurality of at least four fibers;  
a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of at least four ports; and  
a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses, wherein the beamsplitter comprises a single reflective polarizer plate, and wherein the outer surface of the beamsplitter has an anti-reflection coating disposed thereon.

18. (Previously Presented) An apparatus, comprising:  
a housing having a plurality of at least four ports, each of the plurality of ports coupled to a corresponding one of a plurality of at least four fibers;

a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of at least four ports; and

a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses, wherein the plurality of at least four ports comprises a first, second, third and fourth input ports, and wherein the first, second, third and fourth input ports are arranged in a one dimensional linear array.

19. (Previously Presented) An apparatus, comprising:

a housing having a plurality of at least four ports, each of the plurality of ports coupled to a corresponding one of a plurality of at least four fibers;

a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of at least four ports; and

a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses, wherein the plurality of at least four ports comprises a first, second, third and fourth input ports, and wherein the first, second, third and fourth input ports are arranged in a two dimensional array.

20. (Original) The apparatus of claim 19, wherein the two dimensional array forms a hexagonal pattern.

21. (Previously Presented) An apparatus, comprising:

a housing having a plurality of at least four ports, each of the plurality of ports coupled to a corresponding one of a plurality of at least four fibers;

a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of at least four ports; and

a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses, wherein the beamsplitter comprises a prism, and wherein the prism is constructed from a material comprising birefringent crystal material.

22. (Previously Presented) An apparatus, comprising:

a housing having a plurality of ports, each of the plurality of ports to receive a fiber;

a plurality of GRIN lenses disposed within the housing, each of the plurality of GRIN lenses to receive a light beam from a corresponding port of the plurality of ports; and

a rhombic prism having a common optical aperture disposed on an outer surface area, the common optical aperture coupled to the plurality of GRIN lenses to receive the light beam from each of the plurality of GRIN lenses, the common optical aperture to simultaneously operate on the light beams received from each of the plurality of GRIN lenses and wherein the rhombic prism has an inner surface and the light beams have a P-polarized and a S-polarized component, and wherein the beamsplitter has a coating on the inner surface to separate the S-polarized and P-polarized components of the light beam into spatially separate beams.

Claims 23-25 (Canceled)

26. (Previously Presented) A method, comprising:

collimating at least four light beams by a single device having a common optical aperture; and

spatially separating each of the at least four light beams using the single device, wherein spatially separating comprises:

reflecting a S-polarized component of each of the at least four light beams;

refracting a P-polarized component of each of the at least four light beams;

and

propagating each S-polarized component of each of the at least four light

beams towards a corresponding output port and propagating each P-polarized

component of each of the at least four light beams to another corresponding

output port.

27. (Original) The method of claim 26, further comprising focusing each of the S-polarized and P-polarized components into respective output fibers.

Claims 28-29 (Canceled)

30. (Previously Presented) An apparatus, comprising:

means for receiving at least four light beams by a single device having a common optical aperture; and

means for spatially separating each of the at least four light beams using the single device, wherein the means for receiving comprise means for collimating each of the at least four light beams to the common optical aperture, and wherein spatially separating comprises reflecting a S-polarized component of each of the at least four light beams and refracting a P-polarized component of each of the at least four light beams; and

means for reflecting each of the S-polarized component of each of the at least four light beams towards a corresponding output port and propagating the P-polarized component of each of the at least four light beams to another corresponding port.

31. (Original) The apparatus of claim 30, further comprising means for focusing each of the S-polarized and P-polarized components into respective output fibers.